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For internal purposes only: Return to Barry Shuman

Date: September 2, 2008

Client number: 81872.0057

Time:

Attorney billing number: 6085

Total number of pages incl. cover page: 6

Confirmation number: 310-785-4755

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MESSAGE:

Re: U.S. Patent Serial No.: 10/801,987
Inventors: Yuko FUKAWA et al.
Filed: March 16, 2004
For: SOLAR CELL ELEMENT AND SOLAR CELL MODULE

Please see attached.

Appl. No. 10/801,987

Attorney Docket No. 81872.0057

Amdt. Dated _____

Customer No.: 26021

Reply to Office Action of April 30, 2008

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Yuko FUKAWA, et al.

Serial No: 10/801,987

Confirmation No.: 2506

Filed: March 16, 2004

For: SOLAR CELL ELEMENT AND
SOLAR CELL MODULE

Art Unit: 1795

Examiner: Asha J. Hall

Dear Tyler N. Bennett:

In preparation for our telephone interview which is scheduled for Monday, 2:00 pm (EST), September 8, 2008, I am attaching a proposed claim amendment and remarks that we would like to discuss.

Sincerely,



September 2, 2008

Barry M. Shuman
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5. (Currently amended) A method for producing a solar cell module comprising:

~~a step for~~ providing a plurality of solar cell elements each having a front surface electrode formed on a light-receiving surface of a semiconductor substrate thereof, and a back surface electrode formed on a non-light receiving surface of the semiconductor substrate;

~~a step for~~ connecting a first ~~connection tab and~~ inner lead to the front surface electrode of one of the solar cell elements, by melting a first solder layer that is disposed therebetween, wherein the first inner lead comprises a metal foil;

~~a step for~~ connecting a second ~~connection tab and~~ inner lead to the back surface electrode of another of the solar cell elements, by melting a second solder layer that is disposed therebetween and has a different melting point than the first solder layer, wherein the second inner lead comprises a metal foil; and

~~a step for~~ connecting the first ~~connection tab and~~ inner lead to the second ~~connection tab~~ inner lead.

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REMARKS:

The Office at p. 3, lines 5-19 of the Office Action states,

"Tsuzuki et al. provides a step (col.2; lines: 37-38) for connection tabs/metal member (104) for interconnecting the surface electrode on the light-receiving surface and the back surface electrode on the non-light receiving surface of the solar cell elements as shown in Figures 5A and 5B (col.2; lines: 59-67 & col.3; lines: 1-2). Tsuzuki et al. further disclose the step/process of connecting (col. 7, lines: 1-10) a first connection tabs to the front surface electrode of the one of the solar elements by way of a solder connection and then connecting a **second connection tab** to the back of the surface electron of another solar cell element by way of soldering (i.e., one layer for each of the two sides of the connection tab) (col. 3; lines: 14-15 & col.16; lines: 30-35) as shown in Figure 5B. Tsuzuki et al. further discloses a step for connecting the first connection tab to the **second connection tab as shown in Figure 5B** (col.3; lines: 34-37) and utilizes two different material types for electrodes (e.g. lower electrodes (702) are comprised of Al, Ag, Pt, Au, Ni, Ti, etc..) (col.11; lines: 36-39) and upper electrodes (706) are comprised of metal oxides such as SnO₂, ZnO, etc ...(col.12; lines: 7-18)."

Applicant respectfully disagrees. Tsuzuki merely teaches a connection by way of solder for connecting one end and another end of a single connection tab 104 to a front surface of one solar cell and to a back surface of another solar cell, respectively (Tsuzuki, column 7, lines 1-11). The Office cites Figure 5B of Tsuzuki for teaching a "second" connection tab/inner lead. However, Applicant respectfully submits that Figure 5B of Tsuzuki only reveals a single metal member (i.e., reference numeral 104). In contrast, the present invention requires a first and second connection tab/inner lead. (e.g., reference numerals 17 and 19 in Figure 2C of present application).

Furthermore, Tsuzuki only teaches a connection by way of solder on a back surface of a solar cell (Tsuzuki, column 3, lines 14-15; column 16, lines 30-35); and

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Tsuzuki fails to teach or suggest a solder connection for use in a connection tab for connecting in the front surface of the solar cell.

The Office at p. 19, lines 4-6 of the Office Action states,

“Tsuzuki et al. discloses two tabs attached to the top and bottom of the cells which is referenced by 103 and 103' as depicted in Figure 5B.”

Applicant respectfully disagrees. Tsuzuki teaches that 103 and 103' are insulating members. (Tsuzuki, column 6, lines 26-29). Therefore, since 103 and 103' are insulating, they cannot conduct electricity. Similarly, 103 and 103' cannot be inner leads that comprise a metal foil.